

Plant Pathology Fact Sheet

Crown Gall

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Crown gall can affect a wide range of crops, including woody ornamentals, tree fruits and small fruits. Some vegetable and herbaceous ornamentals are also susceptible but these crops are less commonly affected.

Symptoms

Galls are usually restricted to the roots, lower stems and lower branches of infected plants. In some cases, however, crown gall may occur in the upper branches. Galls are somewhat spherical, lumpy and rough, varying in size from 1/2 inch to several inches in diameter.

Affected plants may be stunted, produce small chlorotic leaves and become more sensitive to environmental stresses (particularly winter injury). Severely infected plants may decline and eventually die.

Cause and Disease Development

Crown gall is caused by the soil-borne bacterium, *Agrobacterium tumefaciens*. This organism enters susceptible plants through fresh wounds made during transplanting, cultivating, grafting and pruning. Other wounds inflicted by people, severe weather, insects or other animals may also serve as avenues of infection.



CROWN GALL ON EUONYMUS

Disease Management

1. AVOID WOUNDING susceptible plants at or near the soil line.
2. PRUNING INFECTED BRANCHES well back into healthy tissue will serve as an effective means of control when galls are limited to the above ground portions. Cutting tools should be disinfested with 10% household bleach, 70% alcohol or Lysol between each cut in order to prevent transmitting the bacteria from one cutting to the next.
3. PLANT REMOVAL AND DESTRUCTION may be necessary when crown gall infections are extensive, especially on the lower stem and roots. Avoid replanting the site with trees or shrubs known to be susceptible to crown gall (e.g. apple, pear,

brambles, *Prunus* sp., euonymus, forsythia, grape, honeysuckle, pecan, rose, Russian-olive, walnut and willow). Plants known to be resistant to crown gall include: hemlock, holly, hornbeam, linden, pine, spruce.

4. CHEMICAL TREATMENT may be practical for commercial growers or homeowners with valuable landscape plants.

Galltrol-A and Gallex are two products cleared for use on almond, apricot, cherry, grape, peach, plum, prune, walnut and ornamentals subject to crown gall. In addition, Galltrol is labeled for nectarine and raspberry, while Gallex carries a label for apple, bushberry, pear, olive, and pecan. Neither material is readily available in many Kentucky garden centers so those interested in using either chemical may need to contact the manufacturer (Ag BioChem, Inc.) in Orinda, CA.

Galltrol is a biological control material used for the prevention of crown gall. It is used as a preplant dip treatment for certain

seeds, cuttings, bare root seedlings, and planting stock in nurseries, greenhouses and orchards. Galltrol is not effective for preventing crown gall of grapes. Pre-existing galls are not controlled with this material.

Gallex is a product for eradicating crown gall. This material is painted on exposed galls, cut surfaces and nearby healthy tissue. The major portion of large galls should be removed prior to treatment. Before applying Gallex to root galls, it is necessary to remove as much soil as possible from around these underground galls. If hosing off the soil is necessary, the galls must be allowed to dry before treatment. Then, after treatment, these root galls should be left exposed for a day before replacing the soil. Treated galls should be examined within 4-6 months. If any live galls are found, Gallex should be re-applied. This compound is normally used in early spring during dormancy, in the spring or in early summer.

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